PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

September 5, 2024 EA2024-1189

Cort Cortez
Electric Operations Manager
Lassen Municipal Utility District (LMUD)
65 S. Roop St
Susanville, CA 96130

SUBJECT: Electric Transmission, Distribution, and Substation Audit of LMUD

Dear Mr. Cortez:

On behalf of the Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission (CPUC), Brandon Vazquez and Thomas Roberts of ESRB staff conducted an electric transmission, distribution, and substation audit of LMUD from May 13 to May 17, 2024. During the audit, ESRB staff conducted field inspections of LMUD's transmission, distribution, and substation facilities and equipment, and reviewed pertinent documents and records.

As a result of the audit, ESRB staff identified violations of one or more General Orders (GOs). A copy of the audit findings itemizing the violations is enclosed. Please provide a response no later than **October 4, 2024**, by electronic copy of all corrective actions and preventive measures taken by LMUD to correct the identified violations and prevent the recurrence of such violations.

Please note that ESRB will be posting the audit report and your response to our audit on the CPUC website. If there is any information in your response that you would like us to consider as confidential, we request that in addition to your confidential response, you provide us with a public version (a redacted version of your confidential response) to be posted on our website.

If you have any questions concerning this audit, please contact Brandon Vazquez at (628) 249-2867 or Brandon.Vazquez@cpuc.ca.gov.

Sincerely,

Rickey Tse, P.E.
Program and Project Supervisor
Electric Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission

Enclosure: CPUC Electric Transmission, Distribution, and Substation Audit Report for LMUD

Cc: Lee Palmer, Director, Safety and Enforcement Division (SED), CPUC

Nika Kjensli, Program Manager, ESRB, SED, CPUC
Yi (Rocky) Yang, Senior Utilities Engineer (Supervisor), ESRB, SED, CPUC
Brandon Vazquez, Utilities Engineer, ESRB, SED, CPUC
Thomas Roberts, Senior Utilities Engineer (Specialist), ESRB, SED, CPUC

LASSEN MUNICIPAL UTILITY DISTRICT (LMUD)
ELECTRIC TRANSMISSION, DISTRIBUTION, & SUBSTATION AUDIT FINDINGS
May 13-17, 2024

Part 1 – Electric Transmission & Distribution Audit

I. Records Review

During the audit, ESRB staff reviewed the following records:

- LMUD's inspection, maintenance, and vegetation management procedures.
- Overhead and underground facilities statistics.
- Completed and canceled work orders from April 2023 to April 2024, and open work orders from April 2019 to April 2024.
- Patrol and detailed inspection records from April 2019 to April 2024.
- Distribution Reliability Metrics from April 2019 to April 2024.
- LMUD's Service Territory Map.
- New construction projects (both overhead and underground) completed from April 2023 to April 2024.
- Pole loading and safety factor calculations completed from April 2023 to April 2024.
- Inspector list and inspector qualifications from April 2019 to April 2024.
- Distribution equipment test records from April 2021 to April 2024.

ESRB did not find any record violations.

II. Field Inspection

During the field inspection, ESRB staff inspected the following facilities:

Location #	Structure Type	Structure #	Latitude	Longitude
1	Transmission Pole	Circuit 100 6/24	40.3381237	-120.9208163
2	Transmission Pole	Circuit 100 6/25	40.3382832	-120.9201699
3	Transmission Pole	Circuit 100 7/1	40.3386248	-120.9196392
4	Transmission Pole	Circuit 100 7/2	40.3388778	-120.919153
5	Transmission Pole	Circuit 200 7/2	40.338646	-120.9190434
6	Transmission Pole	Circuit 100 18/28	40.4150637	-120.723512
7	Transmission Pole	Circuit 100 18/29	40.4151783	-120.7229424
8	Transmission Pole	Circuit 100 19/1	40.415284	-120.7221233
9	Transmission Pole	Circuit 100 19/2	40.4154295	-120.721488
10	Transmission Pole	Circuit 100 19/3	40.4155071	-120.7207604
11	Transmission Pole	Circuit 100 19/2	40.4156625	-120.7200815
12	Secondary Pole	07968	40.43409	-120.7450565
13	Primary Pole	08457	40.7689136	-120.7260393
14	Primary Pole	0768	40.7665963	-120.7252528
15	Primary Pole		40.7669752	-120.7256028
16	Primary Pole		40.7658322	-120.7245641
17	Primary Pole	07965	40.7066697	-120.7300291
18	Primary Pole	07440	40.706929	-120.7297297
19	Primary Pole	05605	40.7073054	-120.7292707
20	Primary Pole	07955	40.514156	-120.578793
21	Primary Pole	07294	40.515589	-120.578793
22	Primary Pole	07293	40.515589	-120.5802613
23	Secondary Pole	08452	40.3528825	-120.6525612
24	Secondary Pole	08501	40.3529049	-120.65247
25	Service Tree Connect	4865	40.3530253	-120.6521344
26	Primary Pole	4845	40.3530912	-120.6518354

27	Primary Pole	4862	40.3532187	-120.6532133
28	Primary Pole	07840	40.3763012	-120.6083179
29	Primary Pole	07954	40.3763048	-120.6089706
30	Primary Pole	07828	40.3763434	-120.6076077
31	Primary Pole	07829	40.3761503	-120.6067756
32	Primary Pole	08466	40.3831059	-120.5878422
33	Primary Pole	4349	40.3826296	-120.5881054
34	Primary Pole	4350	40.3821482	-120.5883515
35	Primary Pole	07956	40.3691975	-120.4741343
36	Primary Pole	4598	40.3683193	-120.4742154
37	Primary Pole	4597	40.3673744	-120.4742325
38	Primary Pole	4605	40.3646558	-120.4753064
39	Primary Pole	4594	40.3646267	-120.474204
40	Primary Pole	4593	40.3646137	-120.4732814
41	Secondary Pole	08467	40.2995016	-120.5344562
42	Primary Pole	13810	40.2994019	-120.5346989
43	Primary Pole	13809	40.2992397	-120.5353497
44	Secondary Pole	07967	40.3057651	-120.5359495
45	Transmission Pole	14/16	40.3652715	-120.4058268
46	Transmission Pole	14/17	40.3652932	-120.4049749
47	Primary Pole	07833	40.3993838	-120.3155048
48	Primary Pole	05179	40.3993261	-120.3154263
49	Primary Pole	2920	40.3988014	-120.3166199
50	Primary Pole	08447	40.4181309	-120.6622038
51	Primary Pole		40.418085	-120.6620006
52	Primary Pole		40.4179591	-120.6615654
53	Primary Pole		40.4179377	-120.6614249
54	Primary Pole	09131	40.414714	-120.6598656
55	Primary Pole	13612	40.4142777	-120.6599765
56	Primary Pole	3613	40.4138904	-120.6600275
57	Primary Pole	09805	40.4177358	-120.642162
58	Primary Pole	09806	40.417431	-120.6422874
59	Primary Pole	09807	40.4170586	-120.6424359
60	Primary Pole	07848	40.4180921	-120.6361099
61	Primary Pole	09512	40.418098	-120.6362997
62	Primary Pole		40.4177179	-120.6360995
63	Primary Pole	09803	40.4172919	-120.6360894
64	Secondary Pole		40.4172834	-120.6362759

III. Field Inspection Violations

ESRB staff observed the following violations during the field inspection:

1. **GO 95, Rule 44.3, Replacement** states:

> *"Lines or parts thereof shall be replaced or reinforced before safety factors have been reduced (due to factors such as deterioration and/or installation of additional facilities) in Grades "A" and "B" construction to less than two-thirds of the safety factors specified in Rule 44.1 and in Grade "C" construction to less than one-half of the safety factors specified in Rule 44.1. Poles in Grade "C" construction that only support communication lines shall also conform to the requirements of Rule 81.3–A.. In no case shall the application of this rule be held to permit the use of structures or any member of any structure with a safety factor less than one."*

1.1. Transmission Pole #6/24, Circuit 100 located at GPS coordinates 40.3381237, -120.9208163 (Location 1) requires replacement. LMUD has a preexisting Work Order #23071 to replace the pole.
1.2. Transmission Pole #6/25, Circuit 100 located at GPS coordinates 40.3382832, -120.9201699 (Location 2) requires replacement. LMUD has a preexisting Work Order #23071 to replace the pole.
1.3. Transmission Pole #7/1, Circuit 100 located at GPS coordinates 40.3386248, -120.9196392 (Location 3) requires replacement. LMUD has a preexisting Work Order #23071 to replace the pole.
1.4. Transmission Pole #7/2, Circuit 100 located at GPS coordinates 40.3388778, -120.919153 (Location 4) has a large woodpecker hole thus requires replacement. LMUD has a preexisting Work Order #23071 to replace the pole.
1.5. Primary Pole #4605 located at GPS coordinates 40.3646558, -120.4753064 (Location 38) requires replacement. LMUD has a preexisting Work Order #24030 to replace the pole.
1.6. Primary Pole #4593 located at GPS coordinates 40.3646137, -120.4732814 (Location 40) requires replacement. LMUD has a preexisting Work Order #24030 to replace the pole.
    a. In addition, the crossarm has a significant split at the insulator through bolt causing the insulators to lean.
1.7. Primary Pole #2920 located at GPS coordinates 40.3988014, -120.3166199 (Location 49) has a chipped neutral insulator and bent insulator through bolt.
1.8. Primary Pole located at GPS coordinates 40.4179591, -120.6615654 (Location 52) has several significant large horizontal and vertical cracks where it has started to break.

2. **GO 95, Rule 51.6-A, High Voltage Marking** states in part:

> *"Poles which support line conductors of more than 750 volts shall be marked with*

high voltage signs. This marking shall consist of a single sign showing the words "HIGH VOLTAGE", or pair of signs showing the words "HIGH" and "VOLTAGE", not more than six (6) inches in height with letters not less than 3 inches in height. Such signs shall be of weather and corrosion–resisting material, solid or with letters cut out therefrom and clearly legible."

2.1. Transmission Pole #7/2, Circuit 200 located at GPS coordinates 40.338646, -120.9190434 (Location 5) is missing high voltage signage.
2.2. Transmission Pole #18/28, Circuit 100 located at GPS coordinates 40.4150637, -120.723512 (Location 6) is missing distribution high voltage signage.
2.3. Transmission Pole #18/29, Circuit 100 located at GPS coordinates 40.4151783, -120.7229424 (Location 7) is missing distribution high voltage signage.
2.4. Transmission Pole #19/1, Circuit 100 located at GPS coordinates 40.415284, -120.7221233 (Location 8) is missing high voltage signage.
2.5. Transmission Pole #19/2, Circuit 100 located at GPS coordinates 40.4154295, -120.721488 (Location 9) is missing high voltage signage.
2.6. Primary Pole located at GPS coordinates 40.7669752, -120.7256028 (Location 15) is missing high voltage signage.
2.7. Primary Pole #07965 located at GPS coordinates 40.7066697, -120.7300291 (Location 17) is missing high voltage signage on the bottom crossarm.
2.8. Primary Pole #07294 located at GPS coordinates 40.515589, -120.578793 (Location 21) is missing high voltage signage.
2.9. Primary Pole #07293 located at GPS coordinates 40.515589, -120.5802613 (Location 22) is missing high voltage signage.
2.10. Primary Pole #08466 located at GPS coordinates 40.3831059, -120.5878422 (Location 32) is missing high voltage signage.
2.11. Primary Pole #4349 located at GPS coordinates 40.3826296, -120.5881054 (Location 33) is missing high voltage signage.
2.12. Primary Pole #4350 located at GPS coordinates 40.3821482, -120.5883515 (Location 34) is missing high voltage signage.
2.13. Primary Pole #4598 located at GPS coordinates 40.3683193, -120.4742154 (Location 36) is missing high voltage signage.
2.14. Primary Pole #4597 located at GPS coordinates 40.3673744, -120.4742325 (Location 37) is missing high voltage signage.
2.15. Primary Pole #4594 located at GPS coordinates 40.3646267, -120.474204 (Location 39) is missing high voltage signage.
2.16. Primary Pole #13809 located at GPS coordinates 40.2992397, -120.5353497 (Location 43) is missing high voltage signage.

3. GO 95, Rule 54.6-B, Vertical and Lateral Conductors, Ground Wires states in part:

"That portion of the ground wire attached on the face or back of wood crossarms or on the surface of wood poles and structures shall be covered by a suitable protective covering (see Rule 22.8)."

3.1. Transmission Pole #18/29, Circuit 100 located at GPS coordinates 40.4151783, -

120.7229424 (Location 7) has an exposed ground wire.

3.2. Primary Pole #4597 located at GPS coordinates 40.3673744, -120.4742325 (Location 37) has an exposed ground wire.

3.3. Primary Pole #13809 located at GPS coordinates 40.2992397, -120.5353497 (Location 43) has an exposed ground wire.

3.4. Primary Pole located at GPS coordinates 40.4179377, -120.6614249 (Location 53) has an exposed ground wire.

3.5. Primary Pole #09131 located at GPS coordinates 40.414714, -120.6598656 (Location 54) has an exposed ground wire.

4. GO 95, Rule 31.1, Design, Construction and Maintenance states in part:

"Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service."

4.1. Transmission Pole #19/2, Circuit 100 located at GPS coordinates 40.4154295, -120.721488 (Location 9) has a loose/sagging crossarm and insulators.

4.2. Primary Pole #4349 located at GPS coordinates 40.3826296, -120.5881054 (Location 33) has a leaning/sagging middle pin insulator.

4.3. Primary Pole located at GPS coordinates 40.4177179, -120.6360995 (Location 62) has a split pole top causing the crossarm to sag down.

5. GO 95, Rule 56.2, Overhead Guys, Anchor Guys and Span Wires, Use states in part:

"Guys shall be attached to structures, as nearly as practicable, at the center of load. They shall be maintained taut and of such strength as to meet the safety factors of Rule 44."

5.1. Primary Pole #4350 located at GPS coordinates 40.3821482, -120.5883515 (Location 34) has a slacked anchor guy.

5.2. Primary Pole #07956 located at GPS coordinates 40.3691975, -120.4741343 (Location 35) has a slacked anchor guy.

5.3. Primary Pole #4594 located at GPS coordinates 40.3646267, -120.474204 (Location 39) has a frayed/damaged anchor guy.

6. GO 95, Rule 35, Vegetation Management states in part:

"Where overhead conductors traverse trees and vegetation, safety and reliability of service demand that certain vegetation management activities be performed in order to establish necessary and reasonable clearances, the minimum clearances set forth in Table 1, Cases 13 and 14, measured between line conductors and vegetation under normal conditions shall be maintained.

When a supply or communication company has actual knowledge, obtained either

through normal operating practices or notification to the company, that dead, rotten or diseased trees or dead, rotten or diseased portions of otherwise healthy trees overhang or lean toward and may fall into a span of supply or communication lines, said trees or portions thereof should be removed.

When a supply or communication company has actual knowledge, obtained either through normal operating practices or notification to the company, that its circuit energized at 750 volts or less shows strain or evidences abrasion from vegetation contact, the condition shall be corrected by reducing conductor tension, rearranging or replacing the conductor, pruning the vegetation, or placing mechanical protection on the conductor(s)."

6.1. A tree is growing around the primary neutral conductor at Primary Pole #4350 located at GPS coordinates 40.3821482, -120.5883515 (Location 34).
6.2. Secondary Pole located at GPS coordinates 40.4172834, -120.6362759 (Location 64):
   a. Is overgrown by vegetation.
   b. Has a service drop with vegetation strain.

7. **GO 95, Rule 37, Minimum Clearances of Wires above Railroads, Thoroughfares, Buildings, Etc. Table 1 Case 6E** states:

   "The minimum required vertical clearance of supply conductors, 750-22,500 Volts, located above walkable surfaces on buildings, (except generating plants or substations) bridges or other structures which do not ordinarily support conductors, whether attached or unattached is 12 feet."

   The primary conductors located at GPS coordinates 40.418085, -120.6620006 (Location 51) have insufficient vertical clearance from the roof of a building.

IV. Observations

1. ESRB staff observed the following third-party potential safety concerns during the field inspection:

   GO 95, Rule 18, Reporting and Resolution of Safety Hazards Discovered by Utilities states in part:

   "For purposes of this rule, "Safety Hazard" means a condition that poses a significant threat to human life or property…"

   GO 95, Rule 18-A, Resolution of Potential Violations of General Order 95 and Safety Hazards states in part:

   "(3) If a company, while performing inspections of its facilities, discovers a Safety Hazard(s) on or near a communications facility or electric facility involving another

company, the inspecting company shall notify the other entity of such Safety Hazard(s) no later than ten (10) business days after the discovery.

(4) To the extent a company that has a notification requirement under (2) or (3) above cannot determine the facility owner/operator, it shall contact the pole owner(s) within ten (10) business days if the subject of the notification is a Safety Hazard, or otherwise within a reasonable amount of time not to exceed 180 days after discovery. The notified pole owner(s) shall be responsible for promptly (normally not to exceed five business days) notifying the company owning/operating the facility if the subject of the notification is a Safety Hazard, or otherwise within a reasonable amount of time not to exceed 180 days, after being notified of the potential violation of GO 95.

1.1. Secondary Pole #08501 located at GPS coordinates 40.3529049, -120.65247 (Location 24) has a Frontier line attached with a rope.
1.2. Primary Pole #07954 located at GPS coordinates 40.3763048, -120.6089706 (Location 29) has a Frontier splice box with a missing cover.
1.3. Frontier needs to transfer its facilities to new Primary Pole #08466 located at GPS coordinates 40.3831059, -120.5878422 (Location 32).
1.4. Primary Pole #4594 located at GPS coordinates 40.3646267, -120.474204 (Location 39):
    a. Has a slacked Frontier anchor guy.
    b. Has a loose Frontier service riser that is hanging down the pole and on the ground.
1.5. Primary Pole #3613 located at GPS coordinates 40.4138904, -120.6600275 (Location 56):
    a. Has a low Frontier service line.
    b. Has two communications lines contacting each other.
1.6. Primary Pole #07848 located at GPS coordinates 40.4180921, -120.6361099 (Location 60) has two communications lines that are attached to the pole with a rope.

Part 2 – Electric Substation Audit

I. Records Review

During the audit, ESRB reviewed the following LMUD standards, procedures, and records:

- List and Map of all LMUD substations.
- Equipment list for each substation.
- Substation inspection procedure.
- Substation oil testing procedure.
- Battery testing procedure.
- Fire system inspection procedure.

- Last two routine monthly substation inspection checklists and monthly reads from 2019-2024 for each substation.
- Four most recent substation oil test results from 2018-2024.
- Four most recent substation electrical test results from 2021 and 2022.

ESRB did not find any record violations.

II. Field Inspection

During the field inspection, ESRB inspected the following substations:

Location	Latitude	Longitude	Voltage
Westwood	40.29998	-121.00166	4 kV
Five Mile	40.4144768	-120.7381706	7.2 kV
Richmond	40.4123029	-120.6605448	12 kV
Milwood	40.4101575	-120.6420325	12 kV
Chestnut	40.4236874	-120.6544871	14 kV
Lambert	40.362472	-120.3995937	12 kV
Johnsonville	40.381901	-120.5745133	12 kV

III. Field Inspection – Violations List

ESRB observed the following violations during the field inspection:

GO 174, Rule 12, General states in part:

> *"…Substations shall be designed, constructed and maintained for their intended use, regard being given to the conditions under which they are to be operated, to promote the safety of workers and the public and enable adequacy of service.*
>
> *Design, construction, and maintenance should be performed in accordance with accepted good practices for the given local conditions known at the time by those responsible."*

1. Westwood Substation

1.1. There is rust on the distribution bus structure.

1.2. There are idle conduits on the ground that are damaged and have exposed wiring.

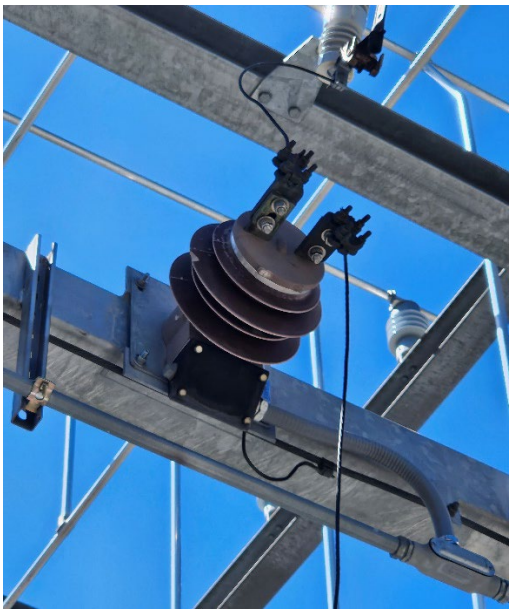
1.3. Modulation transformer is missing a high voltage sign.

1.4. There is a hornet's nest on the transformer cooling fins.

2. Five Mile Substation

2.1. There is spauling/crumbling concrete at the structure footings for the 480/240 V Transformer Bank and Distribution UG service to meter.

2.2. The middle insulator for Transformer 9948 is chipped.



3. Richmond Substation

Two UG vaults are missing high voltage signage.

4. Milwood Substation

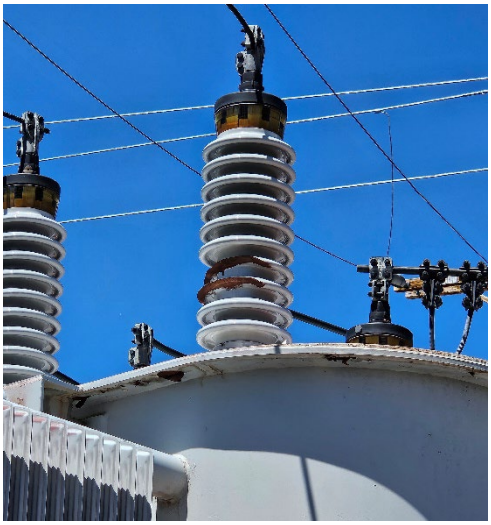
4.1. Circuit Breakers P101 and P202 have faded annunciators.

4.2. There is spauling/crumbling concrete at the structure footing for the distribution Circuit Breakers.

4.3. Main Transformer is missing confined space entry signage.

5. Chestnut Substation

5.1. Main Transformer has a significantly chipped bushing.

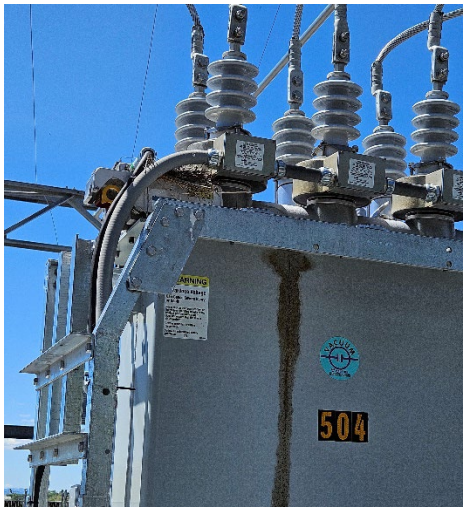


5.2. The Modulation Transformer is missing a high voltage sign.

6. Lambert Substation

6.1. Main Transformer has an oil leak.

6.2. Circuit Breaker 504 has a bird's nest.



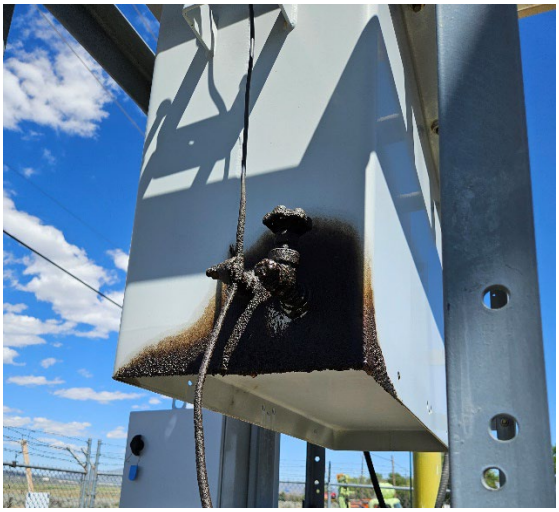
6.3. Voltage Regulator 3 has negative nitrogen pressure.

6.4. The Modulation Transformer is missing a high voltage sign.

7. Johnsonville Substation

7.1. Steel structure has rust.

7.2. Recloser H303 has an oil leak.



7.3. The Modulation Transformer is missing a high voltage sign.